FERNO®
When It's Critical®

Users' Manual

Mondial™ Transporters ST64, ST70

July 2010 GLO
Pub. No. 234-3449-02

Read this Manual and Retain for Future Reference

Ferno Technical Support

Customer service and product support are important aspects of each Ferno product. Please have the product serial number available when calling, and include it in all written communications. For technical support questions, please contact your Ferno distributor.

Ferno Customer Relations

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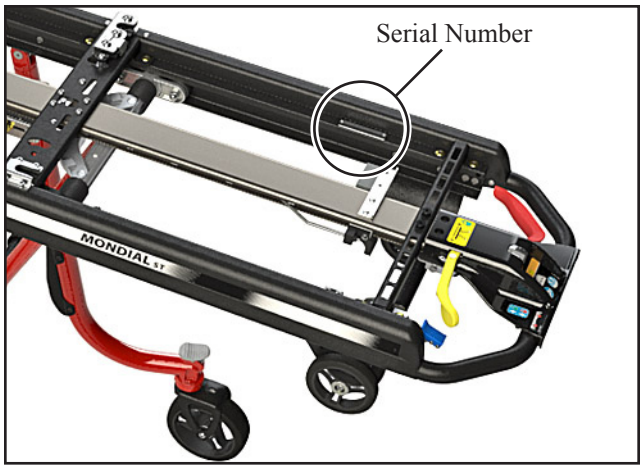

Serial Number _____

Location: Side Rail on Patient Left side

USERS' MANUAL

To request additional free users' manuals, contact Ferno Customer Relations, your Ferno distributor, or visit www.ferno.com.

Disclaimer

This manual contains general instructions for the use, operation and care of this product. The instructions are not all-inclusive. Safe and proper use of this product is solely at the discretion of the user. Safety information is included as a service to the user. All other safety measures taken by the user should be within and under consideration of applicable regulations. It is recommended that training on the proper use of this product be provided before using this product in an actual situation.

Retain this manual for future reference. Include it with the product in the event of transfer to new users. Additional free copies are available upon request from Ferno Customer Relations.

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The products sold by Ferno are covered by a limited warranty, which is printed on all Ferno invoices. The complete terms and conditions of the limited warranty, and the limitations of liability and disclaimers, are also available upon request by calling Ferno at 1.800.733.3766 or 1.937.382.1451.

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1 - SAFETY INFORMATION

1.1 Warning

Warning notices indicate a potentially hazardous situation which, if not avoided, could result in injury or death.

⚠ WARNING

Untrained operators can cause injury or be injured. Permit only trained personnel to operate the transporter.

Improper use of the transporter can cause injury. Use the transporter only for the purpose described in this manual.

Releasing the swivel locks increases the possibility for the transporter to tip. Maintain control of the transporter at all times.

Improper operation can cause injury. Operate the transporter only as described in this manual.

An unattended patient can be injured. Stay with the patient at all times.

An unrestrained patient can fall off the transporter and be injured. Use restraints to secure the patient on the transporter.

An improperly secured stretcher can separate from the transporter and cause injury. Attach the stretcher securely and verify that the slam latches have locked.

Rolling the transporter sideways can cause the transporter to tip and injure the patient or operators. Roll the transporter only with the head-end or foot-end first.

An unlocked undercarriage can cause injury. Before removing the transporter from the ambulance, confirm that both sets of legs unfold completely and lock.

Helpers can cause injury or be injured. Maintain control of the transporter, operate the controls, and direct all helpers.

Improper maintenance can cause injury. Maintain the transporter only as described in this manual.

Improper parts and service can cause injury. Use only Ferno parts and Ferno-approved service on the transporter.

Modifying the transporter can cause injury and damage. Use the transporter only as designed by Ferno.

Attaching improper items to the transporter can cause injury. Use only Ferno-approved items on the transporter.

1.2 Important

Important notices emphasize important usage or maintenance information.

Important

1.3 Bloodborne Disease Notice

To reduce the risk of exposure to bloodborne diseases such as HIV-1 and hepatitis when using the transporter, follow the disinfecting and cleaning instructions in this manual.

1.4 Transporter and Fastener Compatibility

For the purpose of the following notice, the Mondial™ ST64 and ST70 and all other Ferno transporters are included under the generic term “cot”.

Combining different manufacturers’ products into a “mixed-component” cot/cot fastener system can increase the user’s risk of injury and damage.

Ferno-Washington, Inc. strongly recommends that only Ferno-manufactured cots be used in Ferno-manufactured cot fasteners, and that only Ferno-manufactured cot fasteners be used for securing Ferno-manufactured cots in ambulances.

ANY COMBINATION OF A FERNO COT OR COT FASTENER WITH A NON-FERNO COT OR COT FASTENER IS MISUSE OF THE FERNO PRODUCT. Responsibility for the outcome of known, intentional misuse rests squarely on the misuser.

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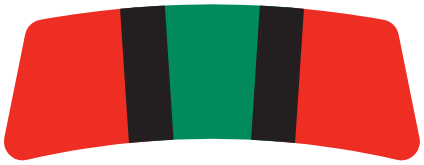
1.5 Safety and Instruction Labels

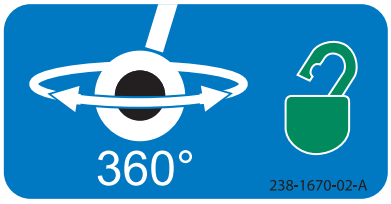
Safety and instruction labels place important information from the users' manual on the transporter. Read and follow label instructions. Replace worn or damaged labels immediately. New labels are available from your Ferno distributor.

Safety Information Label (right): Affixed to the control panels and contains the following warnings:

- General injury warning
- Transporter load limit
- Read the manual
- Two trained operators required

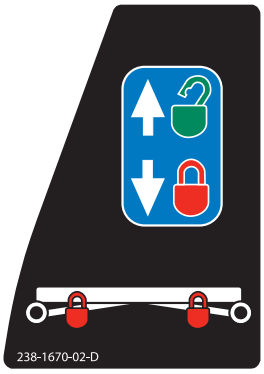


Undercarriage Lock Status: Affixed to the undercarriage lock mechanism; indicates the status of the undercarriage lock: green means the legs are safe/ locked; red means the legs are unlocked for lowering or loading.



Swivel Lock Release Lever: Affixed at the loading end near the blue swivel-lock release lever

Stretcher Release Lever: Affixed at the control end near the yellow stretcher-release lever.



Low-Bed Leg Lock Lever: Affixed at the control end near the low-bed leg lock lever (when equipped)

1.6 Symbol Glossary

The symbols defined below are used on the transporter and in this users' manual. Ferno uses symbols recognized by the International Standards Organization (ISO), American National Standards Institute (ANSI) and the emergency medical services industry.

General Warning of Potential Injury

Pinch Point Keep Hands Clear

Read the Users' Manual

Operation Requires Two Trained Operators

Load Limit

Do Not Lubricate

Lubricate

Locked

Unlocked

Transporter meets European Union Standards

2 - OPERATOR SKILLS AND TRAINING

2.1 Skills

Operators using the transporter need:

- a working knowledge of emergency patient-handling procedures.
- the ability to assist the patient.

2.2 Training

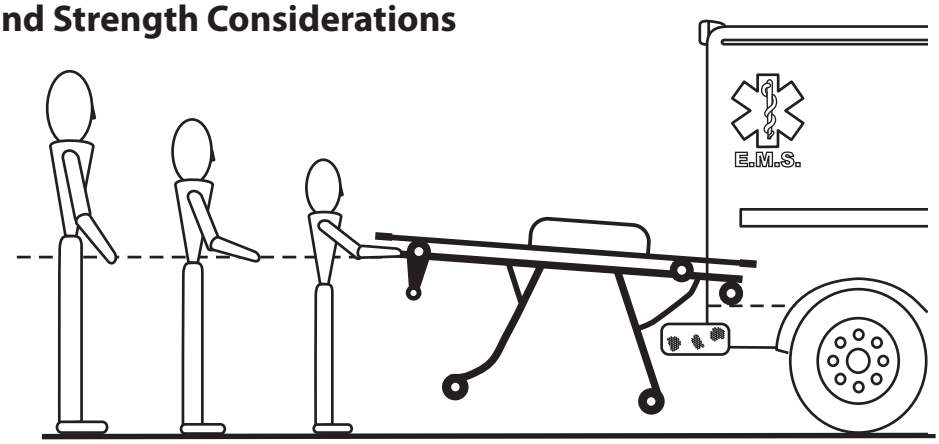
Operator trainees need to:

- read and understand this manual and the manuals for the fastener and stretcher(s) used with the transporter.
- be trained on the use of the transporter, the fastener, and the stretcher(s) used with the transporter.
- practice with the transporter before using it with a patient.
- record their training information. A sample training record sheet is provided on page 28.

⚠ WARNING

Untrained operators can cause injury or be injured. Permit only trained personnel to operate the transporter.

2.3 Height and Strength Considerations



When unloading the transporter, the foot-end operator must lift and hold the weight of the transporter, patient and equipment high enough for the wheels to remain off the ground until the undercarriage legs completely unfold and lock into place.

Supporting this weight requires greater strength from short operators than from tall operators because short operators must raise their arms higher in relation to their shoulders.

Be aware that if the ambulance is parked on an uneven surface, the foot-end operator (and any helpers) may need to lift the transporter higher than normal to allow the legs to unfold completely and lock.

Note: *Use additional help as needed to lift the weight of the transporter, patient and equipment (see* Using Additional Help, *page 23).*

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3 - ABOUT THE TRANSPORTER

3.1 Description

The Models ST64 and ST70 Mondial™ Series Transporters are emergency patient-handling devices designed to transport a patient in a ground-based ambulance. In this manual, the term "transporter" is used when features are identical for both models. The specific transporter name is used when features differ.

The transporter is for professional use by a minimum of two trained operators. It is designed for roll-in loading to help reduce the risk of back injury to medical service personnel.

The transporter is part of a three-component patient-handling system when matched with a compatible Ferno® stretcher and fastener (not included).

COMPATIBLE STRETCHERS AND STRETCHER CHAIRS

- Mondial™ RS2, RS3, RS4 stretchers
- EFX1 stretcher chair
- EFX2, EFX3, EFX4 stretchers

COMPATIBLE FERNO® FASTENERS

- Ferno® FL1
- Ferno® EFX-Lock (conversion required, kit available separately)

TRANSPORTER FEATURES

- Ergonomic control handles
- Choice of red, green, or silver transporter legs
- Six bed positions and a folded position
- ST64: loading height of 64 cm
- ST70: loading height of 70 cm
- Four 150 mm transport wheels
  - Control-end wheels with wheel locks (two)
  - Loading-end wheels with swivel-locks (two)
- Stretcher slam-locks (two)
- EZ Pull™ control handles allow operators to operate the control handle first, before assuming the weight of the transporter during position changes.
- Control handles not required for raising the transporter to a higher position.
- Automatic loading-leg release (when loading transporter into an ambulance); control handles not required to unlock loading legs
- Intermediate loading wheels reduce the amount of lifting required when loading the transporter into, and unloading it from, an ambulance.
- Extremely high-visibility reflective safety stripes
- Reversible stretcher mounting
- Loading/Operator-end leg protectors
- (Optional) No control handles required for loading the transporter if equipped with EZ Load™ automatic leg release.
- (Optional) Low-bed leg lock allows transporter to be carried like a stretcher.
- (Optional) Safety Lock Device (see page 14).

⚠ WARNING

Improper use of the transporter can cause injury. Use the transporter only for the purpose described in this manual.

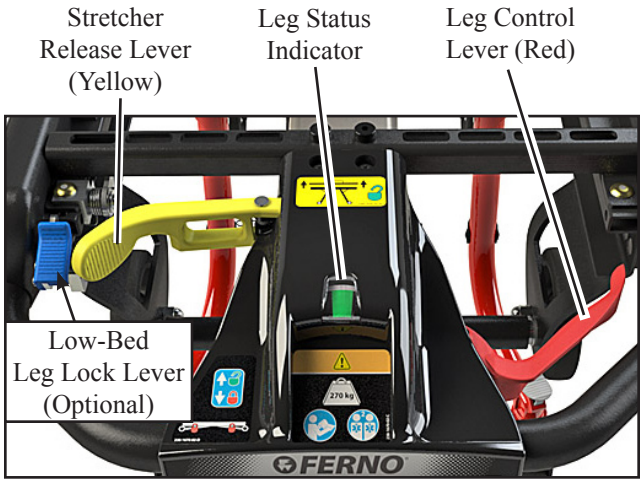
3.2 CE Compliance

MEDICAL DEVICE DIRECTIVE

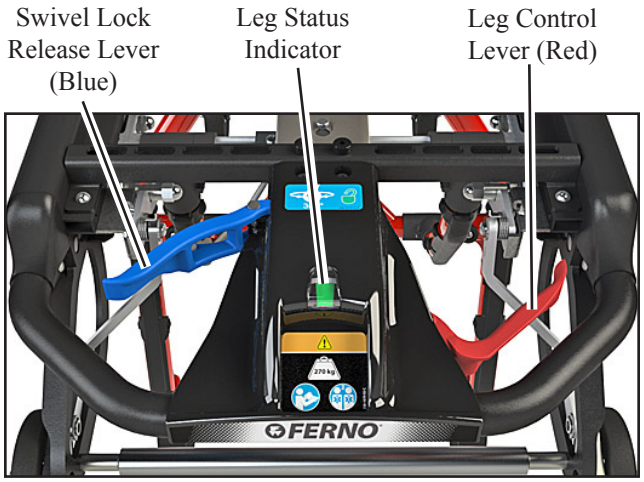
Ferno products meet the requirements of Medical Device Directive 93/42/EEC as established by the European Union.

CE

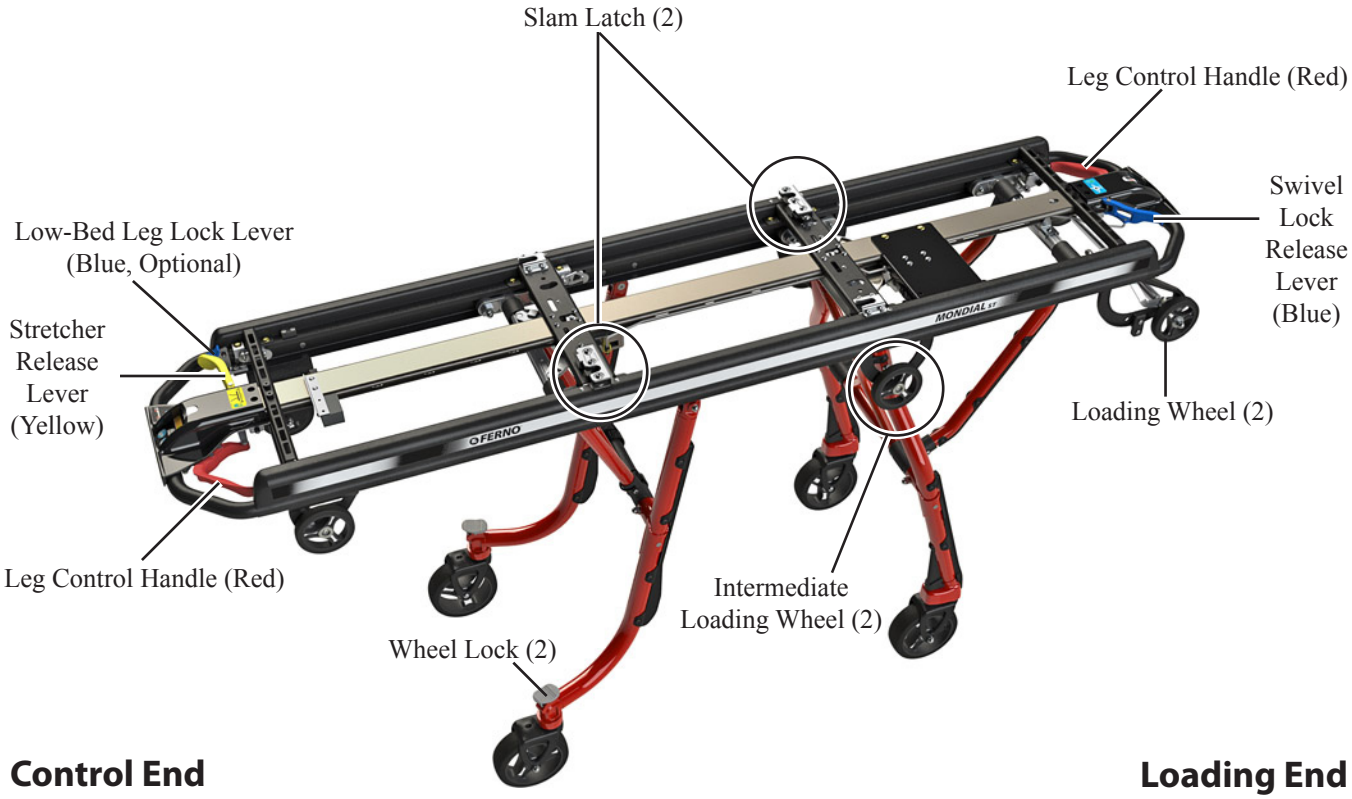
3.3 Components



Control-End Panel



Loading-End Panel



Control End **Loading End**

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3.4 General Specifications

MODEL ST70

Height[1]		
Bed Position 6	41 in.	1045 mm
Loading Height	28 in.	700 mm
Bed Position 5	39 in.	984 mm
Bed Position 4	36 in.	905 mm
Bed Position 3	31 in.	787 mm
Bed Position 2	24 in.	600 mm
Bed Position 1	14 in.	352 mm
Folded Position	14 in.	343 mm
Length	78 in.	1970 mm
Width	22 in.	550 mm
Weight (ST70)[2]	62 lb	28 kg
Load Limit	600 lb	270 kg

MODEL ST64

Height[1]		
Bed Position 6	39 in	987 mm
Loading Height	25 in	640 mm
Bed Position 5	37 in	930 mm
Bed Position 4	34 in	857 mm
Bed Position 3	29 in	746 mm
Bed Position 2	22 in	560 mm
Bed Position 1	14 in	356 mm
Folded (Ambulance) Position	14 in	346 mm
Length	78 in.	1970 mm
Width	22 in.	550 mm
Weight (ST64)[2]	62 lb	28 kg
Load Limit	600 lb	270 kg

General specifications are rounded to the nearest whole number. For more information, contact Ferno Customer Relations (page 2) or your Ferno distributor.

Ferno reserves the right to change specifications without notice.

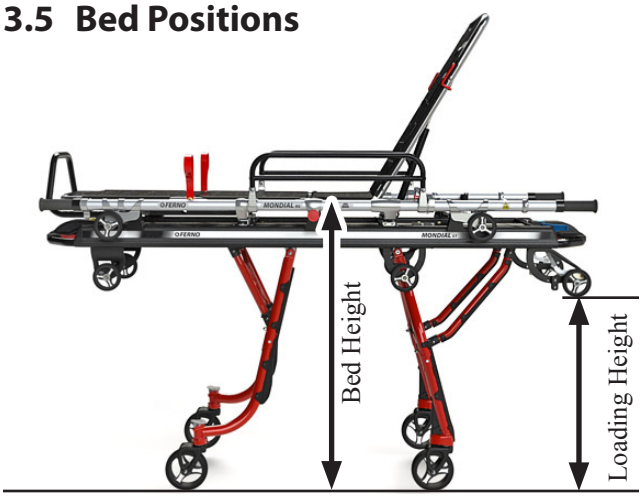
[1]Height measurements are as follows: Bed Position is the distance from the ground to the top of the stretcher seat panel with a stretcher on the transporter. Loading Position is the distance from the ground to the bottom of the loading wheel.

[2]Weight is without stretcher or optional features.

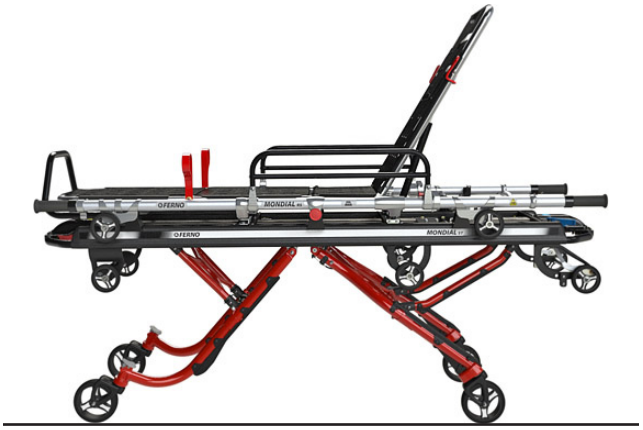
Load Limit

Inspect the transporter if the load limit has been exceeded (See *Inspecting the Transporter,* page 25).

3.5 Bed Positions

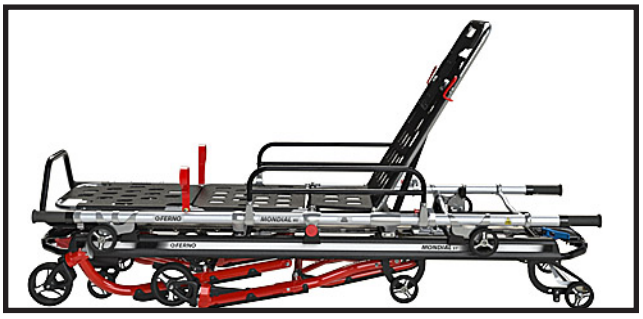


Position 6 (Highest Rolling Position)



Position 3 (Mid-Level Transfer/Rolling Position)

Position 1 (Lowest Transfer Position)



Folded Position

4 - USING THE FEATURES

4.1 EZ Pull™ Leg Control Handles

- **Purpose:** Unlocks the legs nearest the handle, allowing the transporter to be lowered
- **Location:** Each end of the transporter, accessible to the operator's right hand (Figure 1)
- **Use:** (For complete instructions, see *Using the Transporter,* pages 15-23)
  - **Lowering the transporter:** Operators pull both control handles at the same time. The EZ Pull™-style handle allows the operators to operate the handle **before** lifting the transporter so they can grasp the cot with both hands and lift evenly. Both operators then lift the transporter to take the weight off the locking mechanism. The leg-status indicator will change to red when the undercarriage is unlocked and will change to green when the lock is engaged (See *Leg-Status Indicator,* below).
  - **Raising the transporter:** The leg control handles are not used.
  - **During loading:** The Control Operator uses the control-end handle when loading the transporter into an ambulance.*

Note: **If the transporter is equipped with the EZ Load™ automatic leg-release option, the control handle is not used when loading the transporter into an ambulance. See* EZ Load™ Automatic Leg Release, *page 13.*

Figure 1 - Leg Control Handle

Important

The leg-status indicator indicates the state of the undercarriage leg lock:

GREEN = Locked/Safe

RED = Unlocked/Ready to Lower or Load

4.2 Leg-Status Indicator

- **Purpose:** Indicates the status of the leg lock.
- **Location:** Control panel at each end of the transporter
- **Use** (Figure 2)**:** The indicator changes automatically when the leg control handle at the same end of the transporter is used.
  - **Green:** the legs are locked.
  - **Red:** the legs are unlocked (the leg-control handle has been pulled) and the transporter may be lowered or loaded into an ambulance.
  - Always maintain your grasp on the transporter until you verify that both legs have locked at the new position.

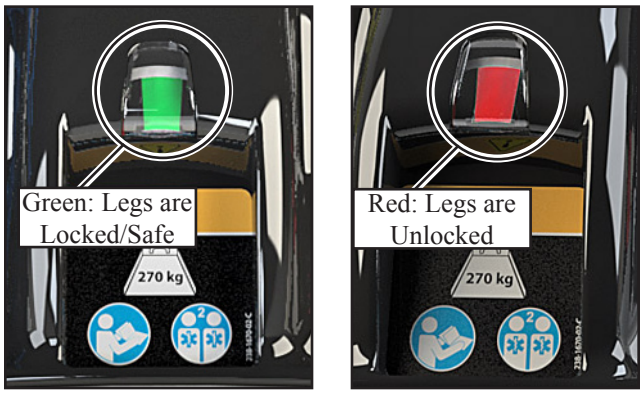


Figure 2 - Leg-Status Indicator

4.3 Stretcher Release Lever (Yellow)

- **Purpose:** Unlocks the stretcher for removal
- **Location:** Transporter control end (Figure 3).
- **Use:**
  1. **Control Operator:** Push and hold the stretcher release lever to disengage the transporter slam locks.
  2. **Both Operators:** Roll the stretcher slightly toward the loading end of the transporter to move the stretcher strike pins out of the slam latches.
  3. **Control Operator:** Let go of the lever.
  4. **Both Operators:** Grasp the stretcher with both hands and lift the stretcher off the transporter.

Figure 3 - Stretcher Release Lever

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4.4 Swivel-Lock Release Lever

- **Purpose:** Unlocks and allows the loading-end caster wheels to swivel 360º
  - **By default, the casters are locked.** The caster wheels can roll but cannot swivel. The casters must be locked before loading the transporter into an ambulance.
  - **When unlocked,** the caster wheels can roll and swivel 360º, allowing the transporter to be maneuvered easily when space is limited.
- **Location:** Transporter loading end (Figure 4)
- **Use:**
  - To unlock the casters for swiveling, the Loading Operator pulls and holds the blue swivel-lock release lever (Figure 4). The operator must continue holding the lever as long as the swivel function is needed.
  - To lock the caster wheels, let go of the lever and roll the transporter toward the loading end until the wheels rotate and lock. This allows the pin inside the trailing end of the caster to engage the lock (Figure 5).

GUIDELINES FOR USE

- The transporter is more stable when the casters are locked and is more maneuverable when the casters can swivel.
- The swivel-lock release lever functions only when the transporter is in the highest rolling position.
- Lock the casters **before** loading the transporter into an ambulance so the wheels will not swivel and interfere with loading or unloading.
- Lock the casters **before** lowering the transporter. At a lower position, shifting weight on the transporter can cause an unlocked loading-end caster to swivel suddenly.
- The swivel caster lock pins are not designed to be lubricated (See *Lubricating the Transporter,* page 26). Use warm water and a mild detergent to clean the lock pins when needed.

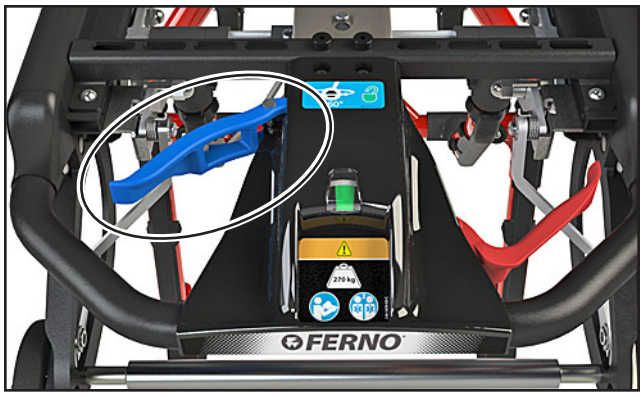

Figure 4 - Swivel-Lock Release Lever

⚠ WARNING

Releasing the swivel locks increases the possibility for the transporter to tip. Maintain control of the transporter at all times.

Important

The loading-end caster wheels lock only when the swivel lock release lever is released **and** the trailing end of each caster orients with the lock pin.

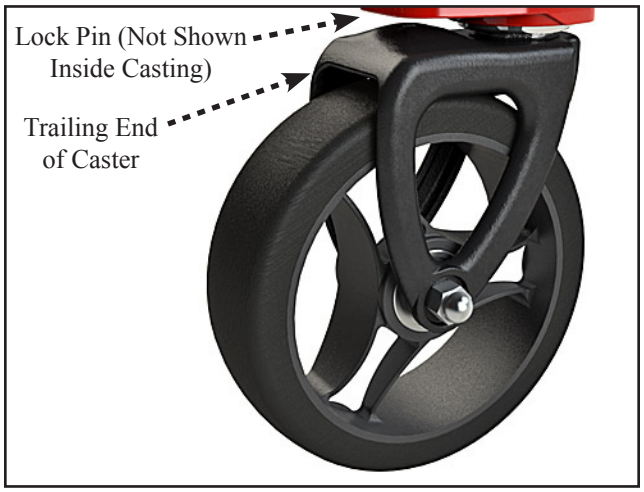

Figure 5 - Swivel Caster

4.5 Stretcher Slam Latches

- **Purpose:** The slam latches (Figure 6) capture and secure the stretcher on the transporter.
- **Location:** Transporter center
- **Use:** To engage the latches, roll the stretcher into the slam latches until the locks engage. To disengage, the Control Operator pushes the stretcher-lock release lever at the control end of the transporter (See *Stretcher Release Lever,* page 10).

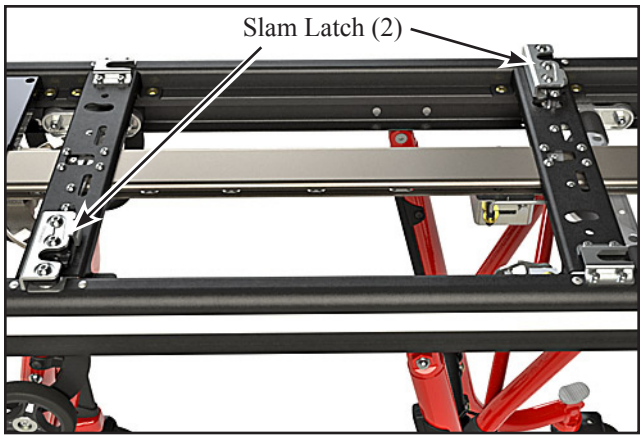

Figure 6 - Stretcher Slam Latches

4.6 Wheel Locks

- **Purpose:** Aid in keeping the transporter from rolling during patient transfer and certain medical procedures
- **Location:** Control-end wheels
- **Use:** To engage the wheel lock, press the lock lever on top of the caster (Figure 7). To disengage the lock, lift the lever up with your toe.

Figure 7 - Wheel Lock

4.7 Intermediate Loading Wheels

- **Purpose:** Reduce the amount of lifting required when loading the transporter into an ambulance and when unloading the transporter from an ambulance
- **Location:** Transporter center
- **Use:** The intermediate loading wheels (Figure 8) are passive aids and do not require any action on the part of the operators.

Figure 8 - Intermediate Loading Wheel

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4.8 Automatic Leg Release (Loading-End Legs)

- **Purpose:** A mechanism connected to the loading wheels (Figure 9) automatically unlocks the loading-end legs for folding as the transporter is loaded into an ambulance.
- **Use:** The automatic leg release is a passive device that does not require any action on the part of the operators.

Figure 9 - Pressure On the Loading Wheels Unlocks the Loading-End Legs

4.9 EZ Load™ Automatic Leg Release (Control-End Legs, Optional)

- **Purpose:** The EZ Load™ automatic leg release for the control-end legs is an optional feature. When the transporter is equipped with this feature, the operators do not use any control handles when loading the transporter into an ambulance.
- **Use:** As the transporter is loaded into the ambulance and after the loading-end legs fold, the control-end legs are automatically unlocked for folding. See *Loading the Transporter* on this page and on page 20.

Loading the Transporter

When the operators load a transporter equipped with the EZ Load™ leg release into an ambulance, the following sequence occurs:

1. The operators begin loading the transporter into the ambulance.
2. The weight of the transporter on the loading wheels unlocks the loading-end legs for folding.
3. The operators continue pushing the transporter into the ambulance.
4. The folded loading-end legs automatically unlock the control-end legs for folding.
5. The operators finish pushing the transporter into the ambulance and secure it in a Ferno® fastener.

4.10 Safety-Lock Device (Optional)

- **Purpose:** The Safety-Lock Device prevents the transporter from being accidentally unloaded from the ambulance before the loading-end legs have locked. This optional device is required in some countries; check the requirements for your country.

  The Safety-Lock Device consists of a hook positioned under the loading end of the transporter (Figure 10) and a user-installed catch plate installed on the ambulance floor or ramp.

- **Use:** As the operators unload the transporter from the ambulance:
  - **If the loading-end legs have not locked:** The transporter hook will catch on the user-installed catch plate. If this happens, raise the control end of the transporter until the loading-end legs swing down completely and lock. Use additional help as needed to lift the transporter. See *Using Additional Help,* page 23.
  - **If the loading-end legs have locked:** No action is needed. The hook on the transporter will not catch on the catch plate and the transporter may be unloaded normally.

Figure 10 - Safety-Lock Device

4.11 Low-Bed Leg Lock (Blue Lever, Optional)

- **Purpose:** Locks both transporter legs in the folded position, allowing the transporter to be carried as a stretcher
- **Location:** Control end of the transporter (Figure 11)
- **Use:**
  - **Both Operators:** Verify the stretcher is locked on the transporter.
  - **Both Operators:** Lower the transporter to the lowest transfer position (Position 1). See *Bed Positions,* page 9.
  - **Control Operator:** Engage the Low-Bed Leg Lock lever.
  - **Both Operators:** Lift and carry the transporter, stretcher and patient. See *Carrying the Transporter,* page 22 for complete instructions.
  - **Both Operators:** Set the transporter down when you reach your destination.
  - **Control Operator:** Disengage the Low-Bed Leg Lock lever.

Note: *The leg lock functions only in Bed Position 1 (see* Bed Positions, *page 9).*

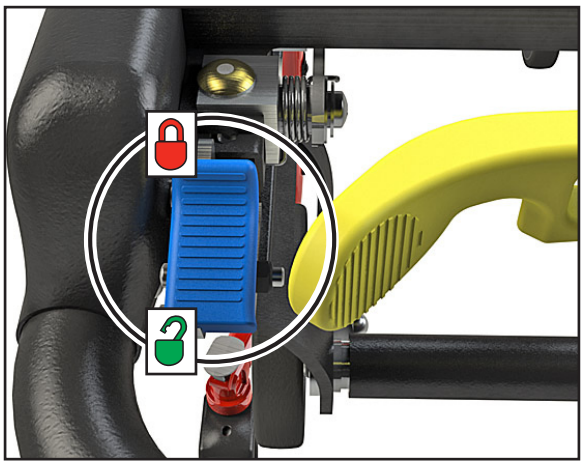

Figure 11 - Leg Lock Lever

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5 - USING THE TRANSPORTER

5.1 Before Placing the Transporter in Service

- Personnel who will work with the transporter need to read this manual and the manuals for the stretcher(s) and fastener to be used with the transporter.
- Confirm that the transporter operates properly. See *Inspecting the Transporter,* page 25.
- The vehicle must have a Ferno fastener system installed.

⚠ WARNING

Improper operation can cause injury. Operate the transporter only as described in this manual.

Read the Users' Manuals

Operation Requires Two Trained Operators

Load Limit

5.2 General Guidelines for Use

- Medical advice is beyond the parameters of this manual.
- It is the users' responsibility to ensure safe practices for the patient and themselves.
- A minimum of two trained operators is required.
- Follow standard emergency patient-handling procedures when operating the transporter.
- **Operators work together and maintain control of the transporter at all times.**
- Operators communicate with one another and use coordinated movements to operate the transporter.
- Lift only the weight you can safely handle. Use additional help when working with heavy loads (patient and equipment). For placement of helpers, see *Using Additional Help,* page 23.
- Stay with the patient at all times.
- Always use patient restraints to secure the patient on the transporter.
- When changing the transporter position (height) or when unloading it from an ambulance, verify that both sets of legs have locked before you release your grasp on the main frame.
- For details on using the stretcher and fastener system, see the users' manuals for these products.

⚠ WARNING

An unattended patient can be injured. Stay with the patient at all times.

⚠ WARNING

An unrestrained patient can fall off the transporter and be injured. Use restraints to secure the patient on the transporter.

5.3 Attaching and Removing A Stretcher

The transporter is designed for use with many Ferno® stretchers and stretcher chairs (see list on page 7). The stretcher can be locked onto the transporter with the patient's head at either end of the transporter.

A stretcher locks onto the transporter when the strike pins on the bottom of a stretcher engage the slam latches on the transporter (Figure 12).

ATTACHING THE STRETCHER

1. Lock the wheel locks to help hold the transporter stationary.
2. **Both Operators:** Lift the stretcher and position the stretcher slightly toward the control end of the transporter (Figure 13). Use additional help as needed to control the load (see *Using Additional Help,* page 23).
3. **Both Operators:** Align the stretcher glides with the transporter main frame and set the stretcher on the transporter main frame.
4. **Both Operators:** Roll the stretcher toward the loading end of the transporter until the stretcher strike pins fully engage in the transporter slam latches.

Note: *As an alternative when the transporter is on flat, level floors or ground, the Loading-end Operator may grasp the transporter main frame and hold it steady as the Control Operator pushes the stretcher into the slam latches.*

5. **Control Operator:** Verify that the stretcher is locked by attempting to pull it toward the control end of the transporter. If the locks have engaged, the stretcher will remain fixed on the transporter. If the locks have not engaged, repeat Steps 2-4.
6. **Control Operator:** Release the wheel locks before rolling the transporter.

REMOVING THE STRETCHER

1. **Both Operators:** As the Control Operator pushes the yellow stretcher-release handle on the transporter (Figure 14), both operators move the stretcher slightly toward the control end of the transporter to move the strike pins out of the slam latches.
2. **Control Operator:** Let go of the stretcher-release handle when the stretcher has cleared the strike pins.
3. **Both Operators:** Together, lift the stretcher off the transporter. Use additional help as needed to control the load (see *Using Additional Help,* page 23).

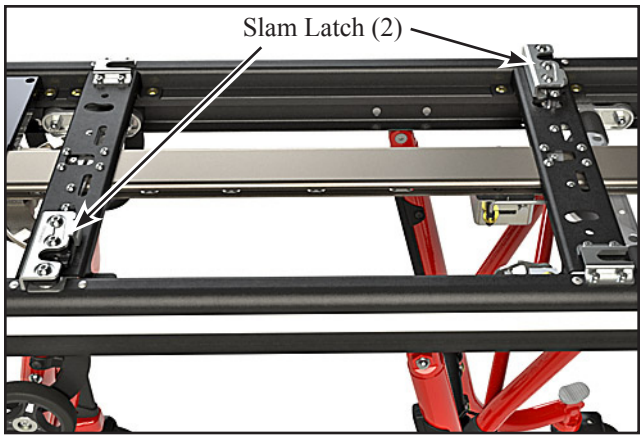

Figure 12 - Slam Latches on Transporter

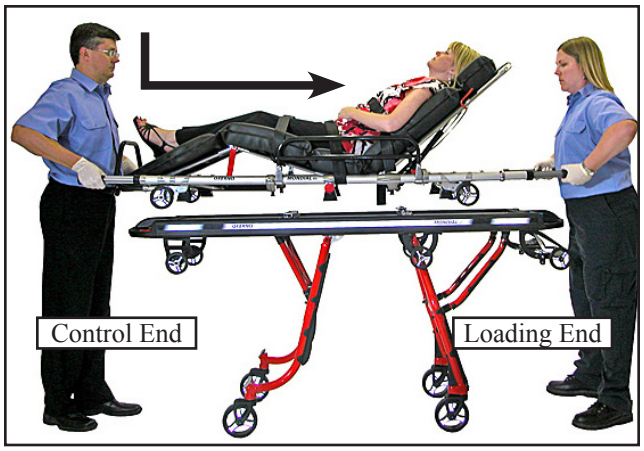

Figure 13 - Attaching the Stretcher

⚠ WARNING

An improperly secured stretcher can separate from the transporter and cause injury. Attach the stretcher securely and verify that the slam latches have locked.

Figure 14 - Stretcher Release Handle

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5.4 Changing Transporter Positions

Changing transporter positions when a patient is on the transporter requires a minimum of two trained operators working together.

BEFORE CHANGING TRANSPORTER POSITIONS

1. Engage the loading-end caster swivel locks so the wheels will not swivel. See *Swivel-Lock Release Lever,* page 11.
2. Operators stand at opposite ends of the transporter and grasp the transporter main frame with an underhand (palms up) grip (Figure 15).
3. Both operators position their right hand to use the leg-control handle.

RAISING THE TRANSPORTER

The operators do not need to use a control handle when raising the transporter.

1. **Both Operators:** Lift the transporter until it is near the desired height. If the legs are lifted off the ground when you attempt to raise the transporter, disengage the Low-Bed Leg Lock (See *Low-Bed Leg Lock,* page 14).
2. **Both Operators:** Verify that the transporter has locked at the new height before relaxing your grasp. If the legs have not locked, raise the transporter a little higher until you hear an audible "click" from the locking mechanism, then retest.

LOWERING THE TRANSPORTER

1. **Both Operators:** Squeeze and hold the leg control handle with your right hand.
2. **Both Operators:** Lift the transporter slightly to take the weight off the locking mechanism and allow the locking mechanism to disengage. The leg-status indicator will change to red.
3. **Both Operators:** Together, lower the transporter (Figure 15).
4. **Both Operators:** Release the leg control handles when the transporter is near the desired height. Continue lowering until the locking mechanism engages.
5. **Both Operators:** Do not release your grasp until your are sure the undercarriage is locked at the new position.

Important

Operators should expect and be prepared to control the normal downward movement of the transporter which occurs when a control handle is squeezed.

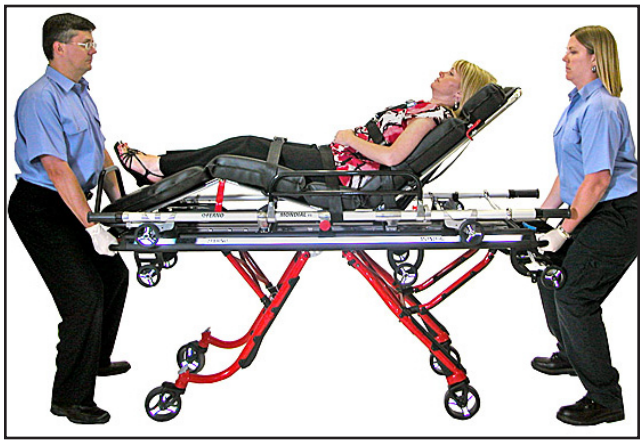

Figure 15 - Raising or Lowering the Transporter

5.5 Transferring the Patient

BEFORE TRANSFERRING THE PATIENT

- Place the transporter as close as possible to the patient to minimize lifting and moving. Adjust the transporter to the level of the patient.

or

- Remove the stretcher from the transporter (See *Attaching and Removing a Stretcher,* page 16) and place the stretcher next to the patient. See the stretcher users' manual for instructions on using the stretcher.

If you choose to leave the stretcher attached to the transporter for the transfer:

1. Unfasten the restraints and arrange the straps so they will not interfere with transferring the patient onto the transporter (Figure 16).
2. Lower the sidearms, retract the side lift handles, and engage the wheel locks.
3. Transfer the patient onto the transporter using approved emergency medical procedures and following your local protocols.
4. Raise the sidearms, adjust the backrest and shock frame as needed.
5. Fasten and adjust the patient restraints.
6. Disengage the wheel locks.
7. Before moving the transporter or changing its position, verify that sheets and other articles are positioned where they will not interfere with transporter operation.
8. Raise the transporter to a rolling position.

Important

The transporter is designed to hold the weight of a stretcher and patient. Use the stretcher load limit to determine the maximum patient weight permitted. Do not exceed the stretcher load limit.

Figure 16 - Transferring the Patient

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5.6 Rolling the Transporter

GENERAL GUIDELINES

- **Rolling the transporter with a patient on it requires a minimum of two trained operators working together and maintaining control of the transporter at all times.**
- Use Position 5 or Position 6 to roll the transporter. Note that the transporter must be in Position 6 to unlock the loading-end caster swivel locks.
- Roll the transporter on smooth, unobstructed surfaces whenever possible.
- To cross a low obstacle such as a door sill, lift the transporter slightly to take the weight off the wheels so the wheels roll smoothly over the obstacle.
- Lift and carry the transporter over a high obstacle such as a curb. **Do not** apply downward force on one end of the transporter in order to raise the other end of the transporter.
- If the transporter is equipped with the auxiliary leg lock, the operators may fold the transporter and carry it. See *Carrying the Transporter,* page 22.
- Do not roll the transporter sideways. Rolling a transporter sideways can increase the chance for the transporter to tip and injure the patient and/or operators.
- Use additional help as needed to safely control the weight of the patient and transporter (see *Using Additional Help,* page 23).
- When rolling over rough terrain, the operators (and helpers) should grasp the main frame with both hands.

ROLLING THE TRANSPORTER

1. Securely fasten the restraints around the patient.
2. **Both Operators**: Place the transporter at a suitable rolling height (Bed Positions 2-6; see *Bed Positions,* page 9) and unlock the control-end wheel locks. If the swivel function on the loading-end wheels is needed, place the transporter in Bed Position 6.
3. **Control Operator**: Position yourself at the control end of the transporter, grasp the main frame, and pull the transporter forward. Or, grasp the main frame of the stretcher at the side of the transporter and roll and guide the transporter (Figure 17).
4. **Assisting Operator**: Position yourself at either the side of the transporter near the patient's torso (Figure 17) or at the loading-end of the transporter and grasp the main frame. Attend the patient and assist in rolling and steering the transporter.

⚠ WARNING

Rolling the transporter sideways can cause the transporter to tip and injure the patient or operators. Roll the transporter only with the head-end or foot-end first.

Important

Roll the transporter downhill operator-end first.

If it is not medically appropriate to do this, roll the transporter with the loading end first **and** have the Loading-end Operator exert upward force on the main frame to help maintain transporter balance.

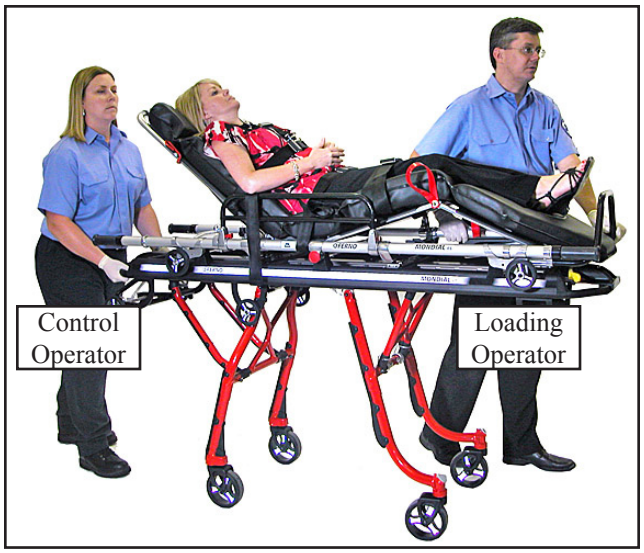

Figure 17 - Rolling the Transporter

5.7 Loading the Transporter

Loading the transporter with a patient on it requires a minimum of two trained operators working together and maintaining control of the transporter at all times.

Note: *Use additional help as needed when working with heavy loads (patient and equipment). See Using Additional Help, page 23.*

1. If the ambulance has a folding tray, lower the ramp.
2. Raise the transporter to its highest bed position and verify that the loading-end swivel casters are locked so they will not swivel during loading.
3. **Assisting Operator:** Stand at the side of the transporter, grasp the main frame, and assist the Control Operator in loading the transporter into the ambulance.
4. **Control Operator:** Grasp the main frame of the transporter using an underhand (palms up) grip and begin pushing the transporter into the ambulance. Roll the transporter forward until both loading wheels are on the patient compartment floor (or tray) and the loading-end legs contact the bumper. The loading-leg lock will unlock the loading legs and allow them to fold (Figure 18).

Note: *If the transporter is equipped with the EZ Load™ automatic control-end leg release, the Control Operator may grasp the stretcher frame or telescoping handles to push the transporter into the ambulance.*

5. **Both Operators:** Before the rear legs contact the ambulance bumper, lift and assume the remaining weight of the transporter, patient and equipment.
6. **Control Operator:**
   - **If the transporter is NOT equipped with the EZ Load™ automatic control-end leg release:** Squeeze the control-end leg control handle to allow the control-end legs to fold and continue pushing the transporter into the ambulance (Figure 19).
   - **If the transporter is equipped with the EZ Load™ automatic control-end leg release:** The control-end legs will automatically begin to fold after the loading-end legs have folded. Continue pushing the transporter into the ambulance.
7. **Either Operator:** Secure the transporter in the fastener system and fold the folding tray ramp if needed.

Figure 18 - Loading the Transporter

Figure 19 - Loading the Transporter

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5.8 Unloading the Transporter

Unloading the transporter with a patient on it requires a minimum of two trained operators working together and maintaining control of the transporter at all times.

Note: *Use additional help as needed when working with heavy loads (patient and equipment). See Using Additional Help, page 23.*

1. If the ambulance has a folding tray, lower the ramp.
2. Release the transporter from the fastener system.
3. **Control Operator:** Grasp the main frame with an underhand (palms up) grip and begin rolling the transporter out of the ambulance. The control-end legs will unfold and lock.

Note: *If the transporter is equipped with the EZ Load™ automatic control-end leg release, the Control Operator may grasp the stretcher frame or telescoping handles to unload the transporter from the ambulance.*

Important

If the ambulance is in a low area or on an incline, the operators (and any helpers) may need to lift the transporter to allow each set of legs to lock.

4. **Assisting Operator:** Assist the Control Operator. As the transporter is pulled from the ambulance, grasp the transporter main frame.
5. **Control Operator:** Verify that the control-end legs have locked by checking the leg-status indicator label as shown in Figure 20 (see *Leg Status Indicator,* page 11). After verifying the legs have locked, continue pulling the transporter out of the ambulance until the loading-end legs unfold completely and lock.
6. **Assisting Operators:** Place your foot against one wheel of the loading-end legs and verify that the legs have finished swinging to their final, locked position (Figure 21).
7. **Both Operators:** Roll the transporter completely out of the ambulance.

SAFETY-LOCK DEVICE REMINDER

During unloading, transporters equipped with the optional Safety-Lock Device may catch on a catch plate. If this happens, raise the transporter control end high enough for both sets of legs to unfold and lock, using additional help as needed. This will allow the transporter to be removed from the catch plate. See *Safety-Lock Device,* page 14.

Figure 20 - After the Control-End Legs Unfold, Check the Indicator to Verify the Legs Have Locked

⚠ WARNING

An unlocked undercarriage can cause injury. Before removing the transporter from the ambulance, confirm that both sets of legs unfold completely and lock.

Figure 21 - Unloading the Transporter

5.9 Carrying the Transporter

The transporter legs can be locked in the lowest transfer position so the operators can lift and carry the transporter over rough terrain or obstacles. To carry the transporter:

1. **Both Operators:** Lower the transporter to Bed Position 1.
2. **Control Operator:** Engage the auxiliary leg lock by pushing the blue Low-Bed Leg Lock lever toward the loading end of the transporter (Figure 22).
3. **Both Operators (and any helpers):** Grasp the transporter main frame and lift and carry the transporter (Figure 23).

To disengage the auxiliary leg lock:

1. **Both Operators:** Set the transporter on the ground or flat surface.
2. **Control Operator:** Disengage the auxiliary leg lock by pressing the lever down.

Note: *Do not engage the auxiliary leg lock while the transporter is loaded in an ambulance. Disengage the lock before loading the transporter into an ambulance.*

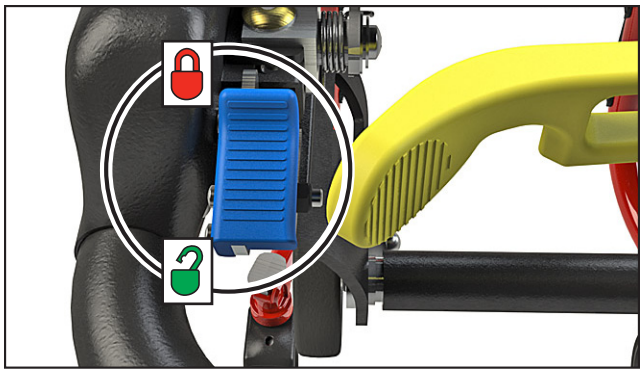

Figure 22 - Low-Bed Leg Lock Lever

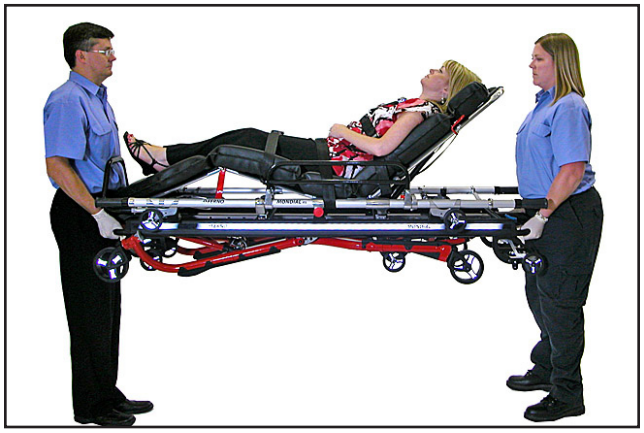

Figure 23 - Carrying the Transporter

5.10 One Operator, Empty Transporter

CHANGING POSITIONS

When the transporter is empty (no patient), one operator can change the transporter height. To raise the transporter, raise one end of the transporter, then the other.

To lower the transporter, squeeze the leg-control handle at one end of the transporter and lower the transporter to the desired position (Figure 24), then move to the opposite end and repeat the process.

Figure 24 - One Operator Changing Positions

If equipment is on the transporter, raise or lower the transporter in stages by adjusting the height only one or two positions at time. This will help keep loose items from sliding off the transporter.

ONE OPERATOR LOADING AND UNLOADING

If local protocols permit, an empty transporter may be loaded into and unloaded from the ambulance by one trained operator (Figure 25). Follow the procedures in *Loading the Transporter,* page 20 and *Unloading the Transporter,* page 21.

Figure 25 - One Operator Loading or Unloading

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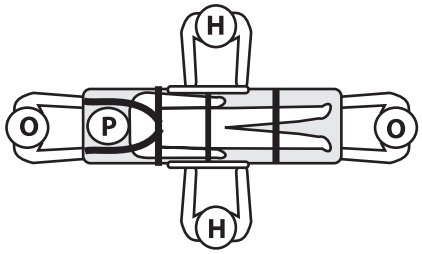
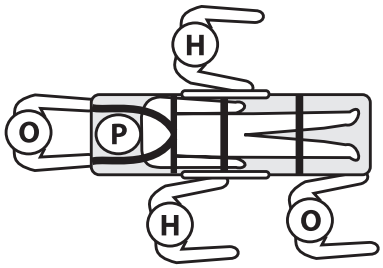
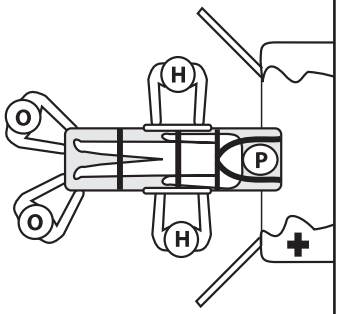
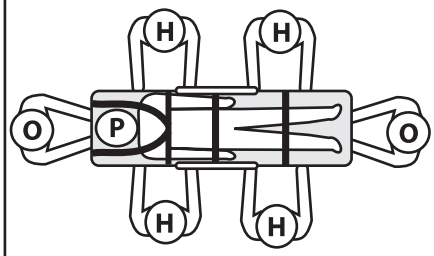
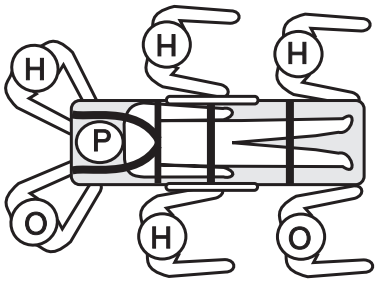
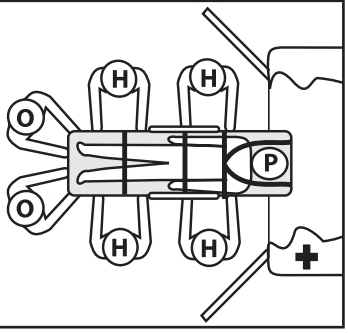
5.11 Using Additional Help

Operating the transporter requires a minimum of two trained operators. They may need additional help when working with heavy loads (patient plus equipment).

- Operators stand at the head and foot ends of the transporter, maintain control of the transporter, operate the controls, and direct all helpers.
- Side helpers may need to walk sideways under some circumstances. Follow local protocols.
- Ferno recommends that helpers work in pairs to help maintain transporter balance.

The chart below shows suggested placement for operators and helpers.

Helpers	Changing Positions	Rolling	Loading/Unloading
Two Operators + Two Helpers			
Two Operators + Four Helpers			

Key: O = Operator H = Helper P = Patient

⚠ WARNING

Helpers can cause injury or be injured. Maintain control of the transporter, operate the controls, and direct all helpers.

Load Limit

Inspect the transporter if the load limit has been exceeded (See *Inspecting the Transporter,* page 25).

6 - MAINTENANCE

6.1 Maintenance Schedule

The transporter requires regular maintenance. Set up and follow a maintenance schedule. The table at right represents minimum intervals for maintenance.

Keep maintenance records. A sample maintenance record sheet is provided on page 28.

When using maintenance products, follow the manufacturers' directions and read the manufacturers' material safety data sheets. You can purchase a recommended disinfectant from your Ferno distributor.

⚠ WARNING

Improper maintenance can cause injury. Maintain the transporter only as described in this manual.

Minimum Maintenance Intervals	Each Use	As Needed	Each Month
Disinfecting (page 25)	•		
Cleaning (page 25)		•	
Waxing (page 25)		•	
Inspecting (page 25)		•	•
Lubricating (page 26)		•	

6.2 Tracker™ (Optional)

The optional Tracker™ device is attached to the undercarriage and counts transporter cycles. A cycle is recorded each time the transporter moves from the folded position to a raised position and back. The total number of cycles is displayed on an LCD readout (Figure 26).

Use the Tracker™ as an aid to schedule and record transporter maintenance.

Note: *The Tracker™ is designed to maintain a count of the total number of transporter cycles. It is not designed to be reset to zero.*

Figure 26 -Tracker™

RECOMMENDED ROUTINE PARTS REPLACEMENT SCHEDULE

Inspect and replace the transporter parts listed below at the proper time or cycle count, whichever comes first. to order kits, see *Parts and Service,* page 27.

- **As needed**
  - 100 mm Loading wheel [190-2034]
  - 150 mm Transport wheel [190-2044]
  - Scuff strips [190-2035; 190-2043; 190-2045; 190-2047]
- **Every year or 5,000 Cycles**
  - Loading-leg return spring [190-2041]
  - Control-leg return spring [190-2037]
- **Every three years or 15,000 Cycles:**
  - Loading-end wheel caster (2) [190-2038]
  - Loading-end swivel-lock pin and spring (2 ea.) [190-2054]
  - Control-end wheel caster w/lock (2) [090-5922]
  - Control-end wheel-lock lever, spring, and paddle (2) [190-2036]
- **Every four years or 20,000 Cycles:**
  - Leg control box assembly (2) [090-5919]
  - Loading-leg lock spring (2) [190-2043]
  - Center control box assembly [090-5920] *(if transporter is equipped with control-end leg auto-release mechanism)*
  - Control-end leg auto-release lever assembly and spring [090-5921] *(if transporter is equipped with control-end leg auto-release mechanism)*

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6.3 Disinfecting and Cleaning the Restraints

Remove the restraints from the stretcher. Disinfect and clean only as directed in the restraint users' manuals provided with the restraints. Additional, free users' manuals can be obtained from Ferno Customer Relations (page 2) or your Ferno distributor.

6.4 Disinfecting and Cleaning the Mattress

1. Remove the mattress from the stretcher.
2. **To disinfect:** Apply disinfectant to the mattress, following the manufacturer's instructions for application method and contact time.
3. **To clean:** Wash the mattress with warm, soapy water and a soft cloth. Rinse the mattress with clear water. Hang the mattress to dry, or dry it with a towel.

6.5 Disinfecting the Transporter

Wipe all surfaces with disinfectant. Follow the disinfectant manufacturer's instructions for application method and contact time. Ferno recommends you inspect the transporter for damage as you disinfect it.

6.6 Cleaning the Transporter

1. Remove the restraints, mattress and any accessories.
2. Hand clean all surfaces of the transporter with warm water and a mild detergent.
3. Rinse with warm, clear water. Dry the transporter with a towel or allow it to air-dry.

6.7 Waxing the Transporter

While it is not necessary to wax this transporter, waxing the aluminum main frame or the painted legs will not damage them, and will help maintain the transporter's appearance.

Disinfect and clean the transporter before applying wax. Use an automotive wax as directed by the wax manufacturer.

6.8 Inspecting the Transporter

Have your service's equipment maintenance personnel inspect the transporter regularly. Follow the checklist at right and operate the transporter through all its functions as described in this manual.

If inspection shows damage or excessive wear, remove the transporter from service until repair is made. See *Parts and Service,* page 27.

Important

Disinfectants and cleaners containing bleach, phenolics, or iodines can cause damage. Do not use products containing these chemicals.

Important

Water under high pressure, or steam, can penetrate joints, flush away lubricant, and cause corrosion. Use caution when cleaning moving parts such as joints and hinges, and reapply lubricant if needed (see page 26).

Important

Using abrasive cleaning compounds or applicators on the transporter can cause damage. Do not use abrasive materials to clean the transporter.

INSPECTION CHECKLIST

- Are all components present?
- Is the transporter free of excessive wear?
- Are all screws, nuts, bolts and rivets securely in place?
- Inspect all visible springs. Is there any visible damage?
- Do all moving parts operate smoothly and properly?
- Does the transporter lock properly into each position?
- Does the stretcher attach securely to the transporter?
- Does the transporter load and unload properly?
- Does the transporter roll smoothly?
- Are the wheels free of excessive wear?
- Do the wheel locks engage properly and stop wheel rotation?
- Is the ambulance properly prepared for the transporter with an approved Ferno fastener system installed?
- Do installed accessories operate properly without interfering with transporter operation?

6.9 Lubricating the Transporter

Disinfect and clean the transporter before applying lubricant. Use the lubricants designated at right to lubricate the transporter. Do not lubricate points marked with the "do not lubricate" symbol.

Do Not Lubricate

Lubricate

Important

Lubricating parts that should not be lubricated allows dirt and foreign particles to collect on those parts, resulting in damage. Lubricate **only** the numbered reference points shown.

LUBRICATION POINTS

Use a small amount of lubricant. Lubricate identical points on each side of the transporter.

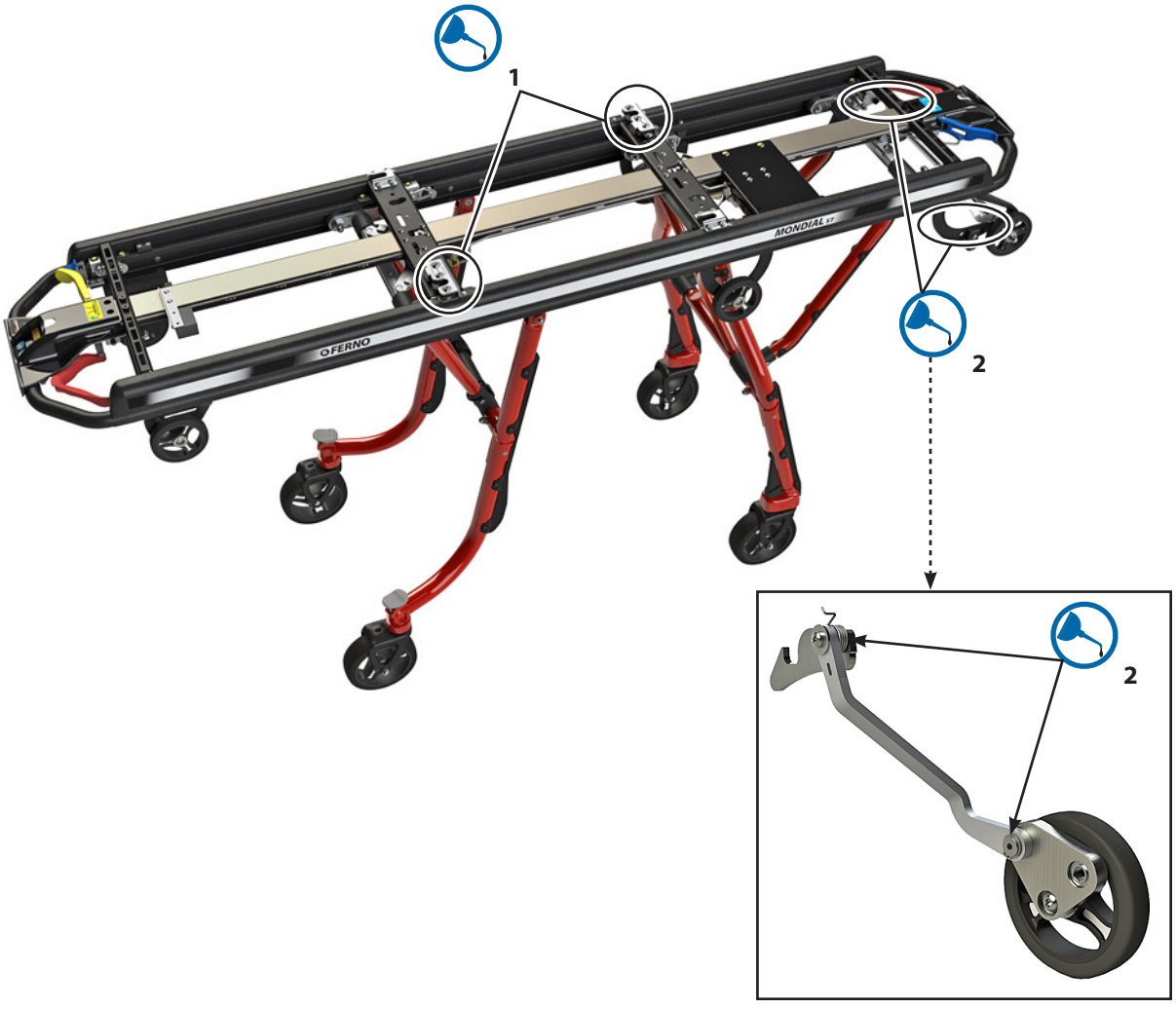
1.	Slam latch spring (2)	WRL-191S or E-Z-1 (1-2 drops)
2.	Loading-wheel linkage (4)	WRL-191S or E-Z-1 (1-2 drops)

LUBRICATION-FREE ITEMS

Channel[1]	Do not lubricate
Rollers	Do not lubricate
Wheels (sealed bearings)	Do not lubricate
Leg pivot points	Do not lubricate
Swivel-caster lock pins[2]	Do not lubricate

[1] The channels do not require lubrication. Lubricating the channels or rollers will cause foreign particles to stick to the rollers and channel, causing damage.

[2] Clean only with mild detergent and water.



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7 - PARTS AND SERVICE

To order Ferno parts, and for professional transporter repair, contact your Ferno distributor. Your distributor is the only agent authorized by Ferno to manage, service, and repair Ferno products.

⚠ WARNING

Improper parts and service can cause injury. Use only Ferno parts and Ferno-approved service on the transporter.

⚠ WARNING

Modifying the transporter can cause injury and damage. Use the transporter only as designed by Ferno.

Kit	Description
190-2034	Mondial Trispoke 100 mm wheel w/hardware
190-2035	Mondial Control-end leg scuff strip w/hardware
190-2036	Mondial Wheel Lock
190-2037	Control-end leg return spring
190-2038	Loading-end wheel fork (no wheel)
190-2039	Mondial fastener crosstube weldment w/hardware
190-2040	Mondial Loading-end wheel axle w/hardware
190-2041	Mondial Loading-leg return spring w/hardware
190-2042	Mondial Loading-end leg bumper
190-2043	Loading-end leg lock torsion springs
190-2044	Mondial Trispoke 150 mm wheel w/hardware
190-2045	Mondial leg brace scuff strips w/hardware
190-2046	Mondial ST70 loading-leg scuff strips w/hardware
190-2047	Mondial ST64 loading-leg scuff strips w/hardware
190-2048	Mondial Trans. loading-end slam latch w/hardware
190-2049	Mondial Trans. leg-release handle (Red)
190-2050	Mondial Trans. stretcher-release paddle (Yellow)
190-2051	Mondial Trans. swivel-release paddle (Blue)
190-2052	Mondial Trans. control-end slam latch w/hardware
190-2053	Mondial Trans. loading-wheel shank glider (pr.)
190-2054	Mondial Trans. swivel release pin, spring
190-2055	Mondial Loading wheel w/hardware
090-5922	Mondial Control-end wheel fork w/wheel lock
090-5919	Mondial Control-box assembly (load or control end)
090-5920	Mondial Center control-box assembly
090-5921	Mondial Control-end leg auto-release assy. w/spring

8 - ACCESSORIES

Ferno offers a full line of emergency medical service accessories (fasteners, IV poles, immobilizers, blankets, etc.). Follow all instructions packed with accessories. Keep the instructions with this manual. When using accessories, be aware of any special considerations such as doorway heights and widths, etc.

Contact Ferno Customer Relations (page 2) or your Ferno distributor for product information.

⚠ WARNING

Attaching improper items to the transporter can cause injury. Use only Ferno-approved items on the transporter.

MONDIAL™ SERIES TRANSPORTERS

Description	Kit
FL1 Fastener	057-3080
Mondial™ Safety Lock Device	083-2164
Mondial™ Tracker™	083-2165

MONDIAL™ SERIES STRETCHERS

RS2, RS3, RS4 Mattress, bolstered	037-4874
RS2, RS3, RS4 Mattress, flat	037-4875
RS2, RS3, RS4 Storage tray	083-2166
RS2, RS3, RS4 DIN-pin kit (Germany)	083-2167
EFX or Mondial™ IV pole	083-2024

TRAINING RECORD		
Date	**Name**	**Training Method**

MAINTENANCE RECORD		
Date	**Maintenance Performed**	**By**

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